

PATENT ABSTRACTS OF JAPAN

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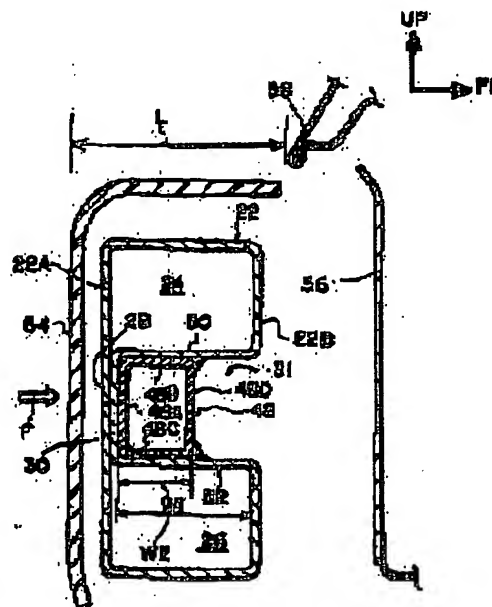
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(54) BUMPER REINFORCEMENT

(57)Abstract:

PROBLEM TO BE SOLVED: To lessen a deforming stroke of a bumper reinforcement and reduce an overhang of the bumper.

SOLUTION: A bumper reinforcement body 22 is substantially B-sectioned so as to have a recess 31 directed in the forward direction of a vehicle in the vertical center in its section, and employs its flat face 22A of the substantial B form as its collision face. The bumper reinforcement body 22 is provided in the recess 31 with an energy-absorbing member 48 of a steel sheet bent to have a rectangular section arranged in the width direction of the vehicle. The rear wall 48A, the top wall 48B and the bottom wall 48C of the energy-absorbing member 48 are brought into contact with a raised wall 28, a bottom wall 50 and a top wall 52 of the bumper reinforcement body 22 respectively, and the front wall 48D thereof is joined at its both upper and lower ends to the bottom wall 50 and the upper wall 52 respectively.



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CLAIMS

[Claim(s)]

[Claim 1] A bumper reinforce characterized by having a main part of a bumper reinforce of a side cross-section abbreviation B mold with which it consisted of steel plates and a crevice was formed in the vertical direction center section from the front or back, and a energy-absorbing member arranged in said crevice.

[Claim 2] A bumper reinforce according to claim 1 characterized by having constituted said energy-absorbing member from a steel plate, and joining said energy-absorbing member into said crevice while making a flat field side of a said side cross-section abbreviation B mold into a collision side side.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention relates to a bumper reinforce and relates to the bumper reinforce for the vehicles of the side cross-section abbreviation B mold which consisted of steel plates especially.

[0002]

[Description of the Prior Art] conventionally, an example of an attachment **** cage and this bumper reinforce is shown for the bumper and the bumper reinforce in the anterior part and the posterior parts of vehicles, such as an automobile, at the U.S. Pat. No. 5,395,036 number.

[0003] As shown in drawing 7, in such a bumper reinforce, the rear bumper reinforce 70 consists of steel plates, and the side cross-section configuration seen from the cross direction of the bumper reinforce 70 serves as the front or back, and a side cross-section abbreviation B mold with which the crevice 72 was formed from the vehicles front side in this case in the vertical direction center section, for example. moreover, in such a bumper reinforce 70 Between the bumper reinforce 70 and the bumper covering 74, the energy-absorbing member 76 which consists of honeycomb material of a steel patch or resin is arranged along with the cross direction. While absorbing a part of input F by the energy-absorbing member 76 to the input (the arrow head F of drawing 7) from vehicles back in this case, the deformation stroke of the bumper reinforce 70 is reduced the input from a vehicles cross direction, and by distributing Input F to the cross direction.

[0004]

[Problem(s) to be Solved by the Invention] However, in such a bumper reinforce, only in the part of the energy-absorbing member 76, the appearance cost of a bumper becomes large, or by the energy-absorbing member 76, in order that the effect of reducing the deformation stroke of the bumper reinforce 70 may arrange the energy-absorbing member 76 between the bumper reinforces 70 and the bumper coverings 74 of a certain thing, when the appearance cost of a bumper is the same, an overhang becomes large.

[0005] While this invention reduces the deformation stroke of a bumper reinforce in consideration of the above-mentioned fact, it is the purpose to obtain the bumper reinforce which can make the appearance cost or overhang of a bumper small.

[0006]

[Means for Solving the Problem] This invention according to claim 1 consists of steel plates, and is characterized by having a main part of a bumper reinforce of a side cross-section abbreviation B mold with which a crevice was formed in the vertical direction center section from the front or back, and a energy-absorbing member arranged in said crevice.

[0007] Therefore, from vehicles forward back, since energy is absorbed for a load to a carrier beam case by main part of a bumper reinforce, and energy-absorbing member in a crevice, a deformation stroke of a bumper reinforce can be reduced.

[0008] Moreover, since a energy-absorbing member was prepared in a crevice of a main part of a bumper reinforce, appearance cost or an overhang of a bumper also becomes small.

[0009] In a bumper reinforce according to claim 1, while this invention according to claim 2

makes a flat field side of a said side cross-section abbreviation B mold a collision side side, it constitutes said energy-absorbing member from a steel plate, and is characterized by joining said energy-absorbing member into said crevice.

[0010] Therefore, from vehicles forward back, about a load, in order to receive a load in a carrier beam case by flat field side of a side cross-section abbreviation B mold of a main part of a bumper reinforce, a pressure-receiving side becomes large. And by main part of a bumper reinforce, and energy-absorbing member which consisted of steel plates and was joined into a crevice, in order to absorb energy, the energy-absorbing effect improves.

[0011]

[Embodiment of the Invention] One operation gestalt of the bumper reinforce of this invention is explained according to drawing 1 - drawing 3.

[0012] In addition, the drawing Nakaya mark FR shows the direction of the vehicles front, and an arrow head UP shows the direction of the vehicles upper part. as shown in drawing 3, this operation gestalt is a rear bumper and the main part 22 of a bumper reinforce is being fixed to the bumper arms 10 and 12 of a left Uichi pair arranged near the cross direction both-ends lower part of the vehicles back end by the body with the nuts 18 and 20 screwed in the weld bolt 14 of the two attachment ***** upper and lower sides and the weld bolts 16 of the two upper and lower sides, and these weld bolts 14 and 16.

[0013] As shown in drawing 2, the main part 22 of a bumper reinforce has composition which connected the closed section sections 24 and 26 of the cross-section rectangle which estranges up and down and is extended to a longitudinal direction in the standing wall sections 28 and 30 of the duplex on the backside [vehicles], and serves as a side cross-section abbreviation B mold with which the crevice 31 was formed in the vertical direction center section of the side cross section from the vehicles front side. Moreover, the main part 22 of a bumper reinforce is crooked in the steel plate of one sheet, and the connection section 33 has met the vertical direction center section of the standing wall section 28 at the cross direction.

[0014] The main part 22 of a bumper reinforce is curving in the shape of a circle by plane view, and cross direction pars intermedia has projected it to vehicles back. Near the cross direction both ends of the front wall sections 32 and 34 of the closed section sections 24 and 26 of the main part 22 of a bumper reinforce, mounting holes 36, 38, 40, and 42 are drilled. Among these, the left-hand side mounting holes 36 and 40 are made into the circular hole, and the right-hand side mounting holes 38 and 42 are the long holes which make the cross direction a longitudinal direction in consideration of the variation in the components at the time of assembly.

[0015] In addition, in mounting holes 36 and 40, the weld bolt 14 (refer to drawing 3) of the two upper and lower sides has penetrated, and the weld bolt 16 (refer to drawing 3) of the two upper and lower sides has penetrated in mounting holes 38 and 42.

[0016] As shown in drawing 1, the main part 22 of a bumper reinforce makes flat field side 22A of a side cross-section abbreviation B mold the vehicles back, i.e., collision side, side, and the energy-absorbing member 48 is arranged along with the cross direction in the crevice 31 of the main part 22 of a bumper reinforce. This energy-absorbing member 48 is what was crooked in the shape of a cross-section rectangle in the steel plate, and posterior-wall-of-stomach section 48A is in contact with the standing wall section 28. Moreover, upper wall section 48B contacted the low wall section 50 of the closed section section 24, and low wall section 48C is in contact with the upper wall section 52 of the closed section section 26. Moreover, the upper wall section 48B and low wall section 48C order width of face W1 serves as the abbreviation half of the low wall section 50 and upper wall section 52 order width of face W2, and the vertical both ends of front wall section 48D of the energy-absorbing member 48 are joined to the low wall section 50 and the upper wall section 52, respectively.

[0017] In addition, in the sign 54 of drawing 1, a sign 56 shows a ROABAKKU panel and the sign 58 shows the body outer panel for bumper covering.

[0018] Next, an operation of this operation gestalt is explained. With the bumper reinforce of this operation gestalt, energy is absorbed for a load (the arrow head F of drawing 1) a carrier beam case from vehicles back by deformation of the main part 22 of a bumper reinforce, and deformation of the energy-absorbing member 48 in a crevice 31. For this reason, the

deformation stroke of a bumper reinforce can be reduced.

[0019] Moreover, since the energy-absorbing member 48 was formed in the crevice 31 of the main part 22 of a bumper reinforce, the appearance cost of a bumper can be made small. Or in being conventionally equal to the appearance cost (L of drawing 7) of the bumper of structure, the appearance cost (L of drawing 1) of a bumper can move the ROABAKKU panel 56 to vehicles back, and can make an overhang small.

[0020] Moreover, in the bumper reinforce of this operation gestalt, since the energy-absorbing member 48 was used as the steel plate and it joined into the crevice 31 while making flat field side 22A of the cross-section abbreviation B mold of the main part 22 of a bumper reinforce into the collision side side, about a load, a load is received in a carrier beam case by flat field side 22A of the cross-section abbreviation B mold of the main part 22 of a bumper reinforce, and a pressure-receiving side becomes large from vehicles forward back. And by the main part 22 of a bumper reinforce, and the energy-absorbing member 48 which consisted of steel plates and was joined into the crevice 31, in order to absorb energy, the energy-absorbing effect improves.

[0021] Although this invention was explained above about the specific operation gestalt at details, this invention is not limited to this operation gestalt, and it is clear for this contractor its for other various operation gestalten to be possible within the limits of this invention. For example, although upper wall section 48B [of the energy-absorbing member 48] and low wall section 48C order width of face W1 was made into the abbreviation one half of the low wall section 50 and upper wall section 52 order width of face W2 with this operation gestalt it may replace with this, and as shown in drawing 4, upper wall section 48B [of the energy-absorbing member 48] and low wall section 48C order width-of-face W3 may be made equal to the low wall section 50 and upper wall section 52 order width of face W2. Moreover, the energy-absorbing member 48 may be arranged only near the cross direction center section in a crevice 31.

[0022] Moreover, as shown in drawing 5, the steel plate should be crooked in the cross-section mold of U characters in the energy-absorbing member 60. Pars-basilaris-ossis-occipitalis 60A of a U character mold is made to contact the standing wall section 30 of the main part 22 of a bumper reinforce. It is good also as a configuration which joined the front end section of upper wall section 60B of a U character mold to the front end section of the low wall section 50 of the closed section section 24 of the main part 22 of a bumper reinforce, and joined the front end section of low wall section 60C of a U character mold to the front end section of the upper wall section 52 of the closed section section 26 of the main part 22 of a bumper reinforce.

[0023] Furthermore, as shown in drawing 6, it is good also as a configuration which joined the energy-absorbing member 62 which makes field side 22B in which the crevice 31 of the side cross-section abbreviation B mold of the main part 22 of a bumper reinforce was formed a collision side side, and consists of honeycomb material in a crevice 31.

[0024] Moreover, although this operation gestalt applied the bumper reinforce of this invention to the rear bumper, the bumper reinforce of this invention is applicable also to a front bumper.

[0025]

[Effect of the Invention] Since this invention according to claim 1 was considered as the configuration which has the main part of a bumper reinforce of the side cross-section abbreviation B mold with which it consisted of steel plates and the crevice was formed in the vertical direction center section from the front or back, and the energy-absorbing member arranged in the crevice, while reducing the deformation stroke of a bumper reinforce, it has the outstanding effect that the appearance cost of a bumper can be made small.

[0026] Since this invention according to claim 2 constituted the energy-absorbing member from a steel plate and joined the energy-absorbing member into the crevice in the bumper reinforce according to claim 1 while it made the flat field side of a side cross-section abbreviation B mold the collision side side, in addition to an effect according to claim 1, it has the outstanding effect that the energy-absorbing effect improves.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the sectional side elevation showing the body posterior part to which the bumper reinforce concerning 1 operation gestalt of this invention was applied.

[Drawing 2] It is the perspective diagram seen from the vehicles slanting front which shows the bumper reinforce concerning 1 operation gestalt of this invention.

[Drawing 3] It is the plan showing a part for the bumper reinforce concerning 1 operation gestalt of this invention in a cross section.

[Drawing 4] It is the sectional side elevation showing the bumper reinforce concerning other operation gestalten of this invention.

[Drawing 5] It is the sectional side elevation showing the bumper reinforce concerning other operation gestalten of this invention.

[Drawing 6] It is the sectional side elevation showing the bumper reinforce concerning other operation gestalten of this invention.

[Drawing 7] It is the sectional side elevation showing the body posterior part to which the bumper reinforce concerning the conventional operation gestalt was applied.

[Description of Notations]

22 Main Part of Bumper Reinforce

22A Field side where the main part of a bumper reinforce is flat

31 Crevice

48 Energy-absorbing Member

60 Energy-absorbing Member

62 Energy-absorbing Member

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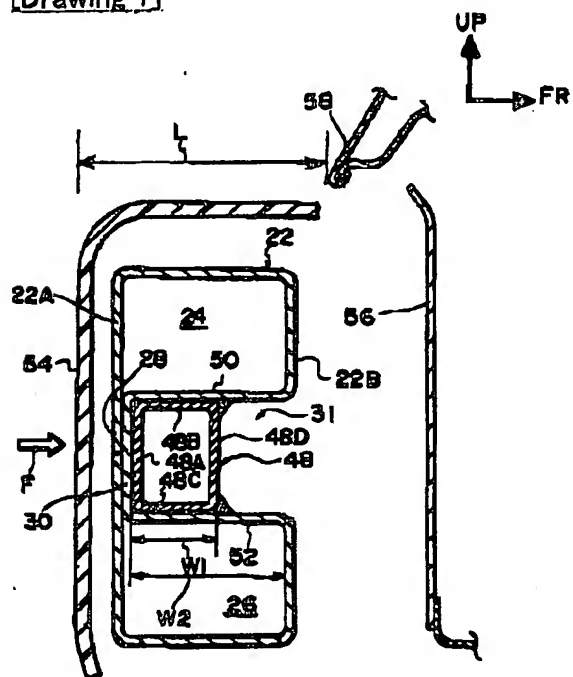
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DRAWINGS

[Drawing 1]



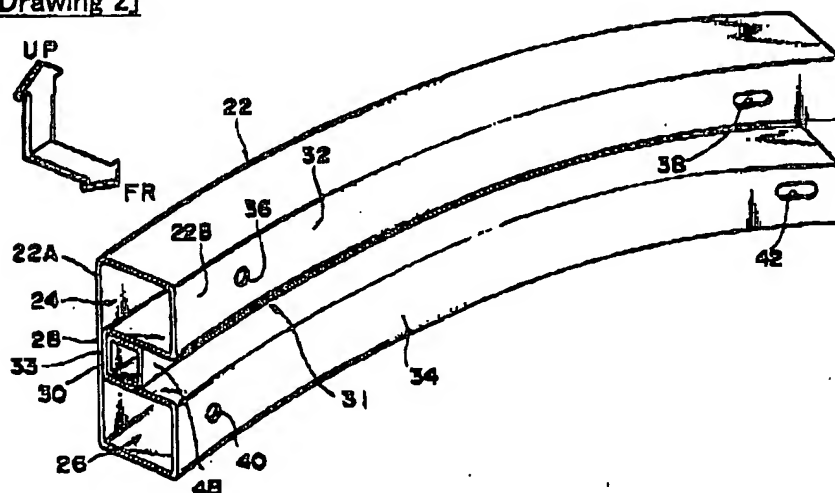
22 パンパラインフォース本体

22A パンパラインフォース本体の平面な図

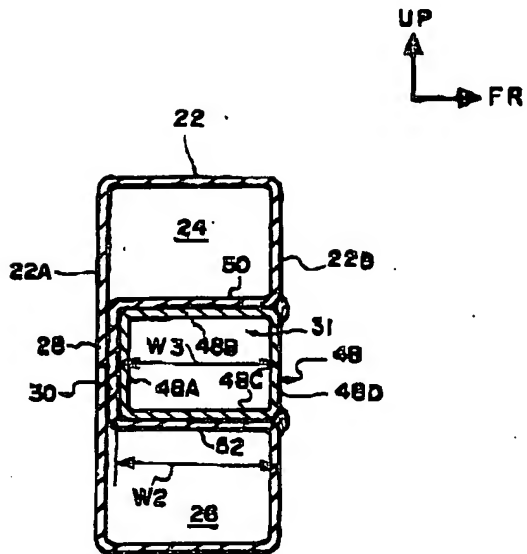
31 凹部

48 エネルギー吸収材料

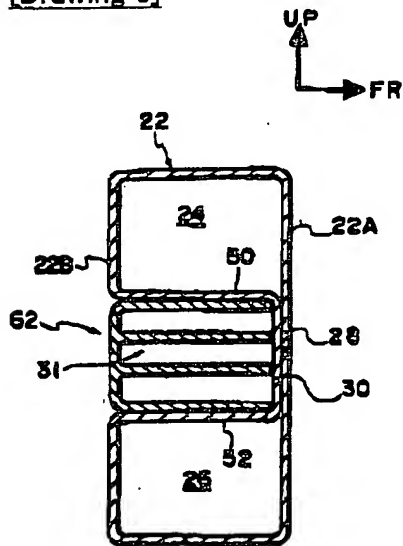
[Drawing 2]



[Drawing 4]

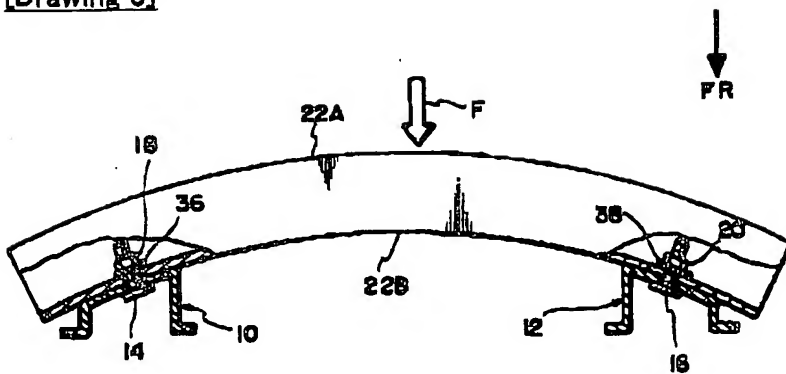


[Drawing 6]

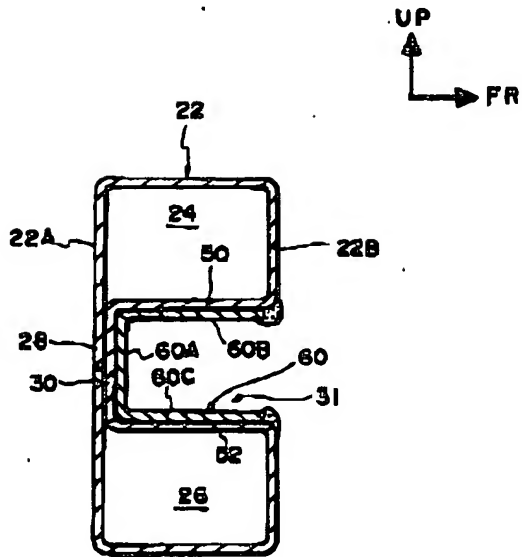


62 エネルギー吸収部材

[Drawing 3]

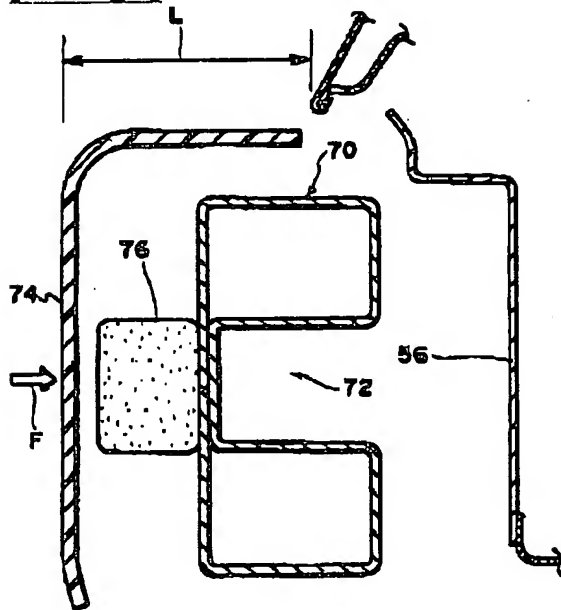


[Drawing 5]



80 エネルギー吸収部材

[Drawing 7]



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CLAIMS

[Claim(s)]

[Claim 1] The bumper for automobiles characterized by to constitute said collision energy-absorbing object from a bottom block which extends on the whole abbreviation target at the cross direction of a bumper , and a bottom block which is on this bottom block , and successive-installation arrangement is carried out at a gap proper to the cross direction , bends in the cross direction , respectively , and consists of two or more deformable segregants in the bumper structure which arranged a collision energy-absorbing object between anterior part of a bumper armature , and bumper FEISHA .

[Claim 2] A bottom block is a bumper for automobiles according to claim 1 characterized by preparing a slit in the vertical direction, forming two or more segregants successively to one, and having fabricated.

[Claim 3] A bumper for automobiles given in claims 1 and 2 characterized by having fabricated a bottom block to a bottom block and one.

[Claim 4] A bumper for automobiles according to claim 3 characterized by having dissociated in the vertical direction and fabricating a segregant of a bottom block and a bottom block through a slit.

[Claim 5] A bumper for automobiles according to claim 3 characterized by forming segregants of a bottom block and a bottom block successively in the vertical direction through a cervix of thin meat.

[Claim 6] A bumper for automobiles given in any of claims 1-5 characterized by having established a slant face in the side of a point of each segregant of a bottom block, and expanding a gap between points of each adjoining segregant they are.

[Claim 7] A slant face of the point side of a segregant is a bumper for automobiles according to claim 6 characterized by fabricating and forming a point of this segregant in plane Yamagata.

[Claim 8] A slant face of the point side of a segregant is a bumper for automobiles according to claim 6 characterized by having fabricated a point of this segregant in the shape of a plane circle, and forming it.

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